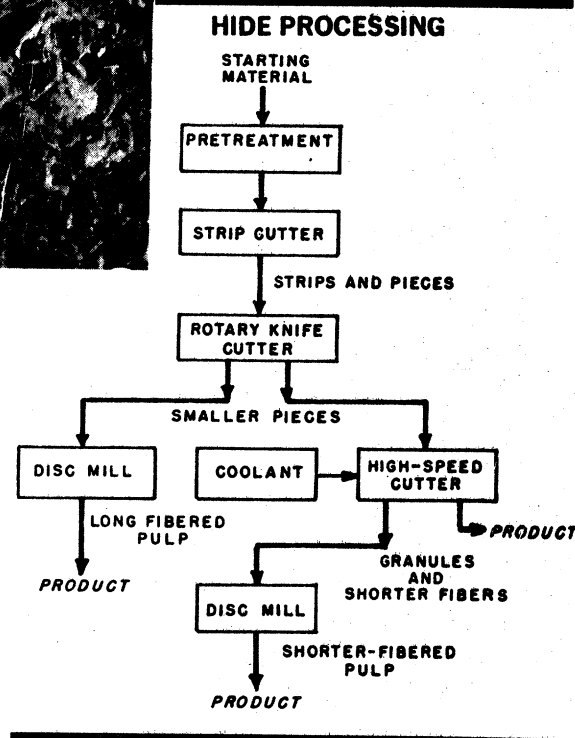


PHOTOMICROGRAPHS show action of disk mill. Hide granules in a fibrous matrix (left) are reduced to fibers (right).

Surplus hides yield protein-fibre dispersion potentially useful as meat binder/extender, texturizer and protein supplement



Converts Collagen to Food Additives

SURPLUS HIDE COLLAGEN, processed to a high-solids dispersion, may be used as a functional additive and protein supplement. Currently, collagen fiber dispersions are used in sausage casings. Slurries with high solids content might be used in foods as meat binders and/or extenders, vegetable protein texturizers, or components of high-protein synthetic meat.

At USDA, we have developed the required dispersion process, which yields up to 30% solids. Water is not added.

Essentially, the process employs three cutters and an attri-

tion mill. Thus, the hide is cut into fiber bundles and the bundles sheared into fibers.

Processing Steps

First, hides are limed, fleshed, washed and adjusted to optimum pH. Pretreated hides are conveyed to a strip cutter (flow chart) that exerts a scissor-like action. Strips and pieces are transferred to a rotary-knife cutter for additional size reduction, and the pieces are forced through a screen with openings of ½ to 1 in. diam.

From the rotary cutter, material is pumped to a high-speed

centrifugal cutter, with openings in the cutting heads ranging from 0.04 to 0.20 in. This machine controls the fiber length. Powdered dry ice is fed to the cutting chamber to reduce the cutting head temperature to about 34F. At this stage, product is a mixture of fibers and granules, and can be used for certain applications in this state.

Finally, the material is pumped to a single revolving disk mill which, by shearing action, produces fibers free of granules.

The fiber is graded after final cutting and shearing because of lack of homogeneity in the raw material. Tests used to characterize the raw material are: pH, particle size distribution, protein denaturation and viscosity.

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